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APPLICATION OF APPRENTICESHIP IN THE VOCATIONAL INTEGRATION OF THE SOCIALLY DISADVANTAGED YOUTH

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DESCRIPTORS OF WORK PROCESSES SELECTED AS THE BEST SUITABLE FOR THE VOCATIONAL INTEGRATION OF SOCIALLY DISADVANTAGED YOUTH

SUMMARISING REPORT

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Introduction

Work process oriented training enables effective vocational integration by providing holistic competences and creating favourable conditions for comprehensive and open vocational guidance process. Therefore the goal of this document is to provide methodical guidelines on how to apply work processes for the vocational integration of socially disadvantaged youth. This goal is achieved by designing the manual for the expert workers workshops to describe occupational profiles according to activity fields, developing the framework of criteria for selecting of learning stations suitable for vocational integration of socially disadvantaged youth and proposing learning station analysis procedure for arrangement of training at learning places according to work process needs. These methodical instruments are tested by analysing work processes in the fields of floristry, welding, aircraft mechanics and printing and preparing descriptors of these work processes, which will serve as a basis for the design of propaedeutic training curricula.

This report consists of 2 parts:

- I: Abstracts of the manuals on expert workers workshops, on how to select activity fields suitable for vocational integration of socially disadvantaged youth and on the procedure of learning station analysis.¹
- II: Examples of the descriptors of work processes and learning stations in the selected fields (floristry, welding, aircraft mechanics, printing).

This document is designed for the experts and specialists involved in designing of propaedeutic vocational education and training measures and instruments for vocational integration of socially disadvantaged youth.

¹ Full versions of the manuals are available on the projects' homepage: www.sodaprent.eu (in English only).

I: Sketch of manuals

1. Expert-Workers-Workshops

Sketch of the method of 'Expert Workers Workshops'

Basic requirements

1 or better 2 facilitators

6 to 10 participants

Room with data projector and metaplan

3-4 hours

The objective of the 'expert workers workshops' is to describe occupational profiles on the basis of activity fields. The method of those workshops is based, but developed further, on 'Designing a Curriculum' (DACUM), a concept that was developed in the US and Canada during the 1980s and 1990s. This concept is basically a tool to assess what people do at their workplace in form of particular 'units' that represent activity-related professional tasks (activity fields). The DACUM concept is based upon three fundamental assumptions:

- A worker who is an expert in his or her field can describe his or her work or metier better than any external observer.
- An occupation can accurately be described by defining the particular work-related actions the expert worker is performing.
- All kinds of work-related actions require a certain level of knowledge, skills, competencies and attitude in order to be performed correctly.

Core work-related or professional tasks (in the following referred to as 'activity fields') describe a particular job to be performed in terms of the expected results. Those tasks are always specific to the particular work setting. The structure and organisation of work along a limited number of core activity fields is crucial in order to understand the purposeful and sense-giving dimension of work.

Core activity fields can be divided into sub-tasks which again can be divided into basic work actions. In the context of occupationally structured labour the analysis of sub-task is only relevant when activity fields need to be described in more detail. For the individual worker the purpose of a particular sub-task is always connected to and forms part of the overall, broader activity field. Sub-tasks (as well as basic work actions) in themselves cannot necessarily be regarded as being purposeful.

Objectives of the 'Expert Workers Workshops'

The 'expert workers workshops' have the following two main objectives:

- To describe modern skilled labour in terms of core activity fields that can be classified according to occupational fields or a specific metier;
- And, of special relevance within the APPRENTSOD-project, to differentiate between different tasks according to the level of skills and training demands they involve.

The respective area of skilled labour determines the objectives and content of the training it requires. If a metier can be described according to core activity fields, then the guiding principles of the vocational education and training it involves are automatically defined. This implies that workers are able to independently perform the described activity field.

The investigation of skilled labour and its description along activity fields need to fulfil the following criteria:

- The activity fields need to represent the broader, higher-level work process.
- It must be possible to relate the activity fields to a specific occupational profile or metier.
- An activity field needs to describe a complete work process that involves and connects planning, implementation and evaluation phases.
- Activity fields also make reference to the contents and methods of the respective area of skilled labour.
- When work within an activity field is being performed, its purpose, function and meaning need to be recognizable in terms of the broader, higher-level work context.

The selection of participants should follow the criteria of representing the respective area of skilled labour. The expert workers who are invited to participate in 'expert workers workshops' must actually work in the core activity fields of the occupational field of investigation. That the participant has also been trained in the respective occupational field is not required, but in most cases this would prove to be an advantage.

Participants also need to be open to share their work-related knowledge, for example about machines, tools, methods, work organisation and training. They must also be able to reflect upon their technical knowledge and have some communication skills in order to be able to describe and explain work processes and tasks. Of course, their participation in the workshops is always voluntary.

Personal occupational history

While the purpose of participants presenting themselves is to get to know each other, the assessment of the occupational history of each participant provides the basic material for the further development of the 'expert workers workshop'.

In particular, the following two operational definitions must be well explained to the participants: 'core activity fields' and 'stages of professional development'.

Definition: Activity fields

Core activity fields describe the respective skilled labour on the basis of purposeful and sense-giving work contexts. Activity fields cover a complete job and are typical for a particular metier.

Definition: Stages of professional development

Stages of professional development refer to concrete workstations, operational areas and other work areas or roles that have formed the expert worker during his or her career history.

In the course of the workshop, the activity fields will gradually be extracted from the work-specific context and generalised. When participants outline and describe their personal occupational history, the activity fields they identify are strongly linked to their personal experience and the respective operational area at their workplace.

The session on developing the participant's personal occupational history starts with identifying the most important stages of the professional development of each participant starting from the initial vocational training up to the level of becoming an expert worker. To avoid too fine a sub-division, each participant is advised not to exceed the limit of five stages. Participants who wish to consider more than five stages are asked to combine stages or select the five most important stages to be presented. The expert workers should also name three to four activity fields which they performed during the stages they identified as being most decisive for their career.

Work step 1: Personal occupational history

- Please, name the most important stages (maximum 5) of your professional development up to the point of becoming an 'expert worker'.
- Please, give three to four typical examples of tasks from your vocational practice that you have performed.
- Please, write down the stages and the examples of tasks on the prepared overhead for the presentation of the results.
- We would like you to present your occupational history in plenum in 15–20 minutes.

Fig. 1: Work step 1: Personal occupational history

Compiling core activity fields

In order to describe a metier on the basis of the concrete skilled work an expert worker should be able to perform the definitive activity fields that typically shape the occupational profile need to be compiled. Based on the challenging activity fields that the participants have described and explained in the context of developing their personal occupational history, the core activity fields of a metier will now be identified and described.

Working method: In order to compile a list of activity fields, three to four participants work together in small groups. Each group is assigned a letter for identification (A, B, C, D...). After the groups have been formed, the facilitators give instructions for how to compile a list of core activity fields. The example below illustrates an activity field that is shortly described including a title.

Each group is given spreadsheets, metaplan cards and pens. For this work step the facilitators should respect the following guidelines:

- Each activity field should be given a title in the form of a full sentence, as well as a sequential number combined with the identifying letter of the group, e.g. A1, A2
- In order to give the participants an idea about the required level of abstraction when describing activity fields, ten to twenty such tasks should be sufficient to describe a metier or occupational profile.
- The activity fields should be described in such a way that they convey an accurate picture of the participant's vocational practice.
- An exhaustive description of an activity field includes an explanation of the tools and methods it involves and the demands specific to the type of skilled work it requires.
- The titles and descriptions of the activity fields are written down on the prepared spreadsheets which are copied and distributed to all participants.
- Additionally, the title of the activity field and the corresponding numbering should be written on the metaplan cards for making a presentation on the pinboard.
- The whole exercise should not exceed 60 minutes. In order to keep to the timeframe, it is recommended that the initial description of the activity fields should only be sketched out or limited to keywords.

While the groups are working, the facilitators make sure that participants have understood the work step and the instructions given and answer any question that may arise. They should try to follow the discussions in the individual groups and take notes of arising problems or particularly interesting contributions. They should also enforce the timeframe. If some groups encounter difficulties in meeting the set timeframe, they should still focus on creating a complete list of the activity fields, but should restrict themselves to describing them by using keywords only.

Afterwards the group results will be presented and discussed with the aim of putting together a common list of activity fields that are characteristic or typical for the metier of investigation. Characteristic or typical activity fields are tasks that can be generated in a way that they can be considered independent of a particular operational area, work setting or a specific person.

Similar fields should be clustered and listed under the same heading or title. If the participants cannot agree upon an appropriate heading, the facilitators can suggest a title or assist in formulating a title. The headings are important as they relate to the core activity fields listed under them. The titles will also be written on metacards and numbered continuously.

Integrating the group results into a common list of typical activity fields as well as the agreement upon corresponding titles indicates an important interim result of the workshop. That is why sufficient time should be allocated to presenting the activity fields in plenum.

Analysis of activity fields

The workshop should be used to develop a first idea of those fields, which are suited best for the integration of socially disadvantaged youth: The identified activity fields shall now be analysed by the participants in terms of the training requirements they involve in the context of skilled labour. The objective of this work step is to categorise the tasks according to four

(low, intermediate, high, very high) different skill levels.

Tool: Explanation of classification of activity fields according to different skill levels

- “You have completed the journey from beginner to expert in your specialisation. On the way you have successfully overcome the difficulties and obstacles and you know what is required to achieve this. In order to better prepare trainees who would like to follow your example, we would like to ask you to classify the identified activity fields according to different skill requirements they involve.”

We recommend that the facilitators prepare one pin boards for each skill level to classify the different tasks. The first skill level could, for example, be explained as follows: ‘The activity field can already be performed by a beginner. At the same time it provides an overview of the occupational field.’ The facilitators should prepare those pin boards before the session starts. If the participants wish to be informed about the objectives and background of the analysis of the activity fields, the following explanation can be given.

The participants may have some very divergent opinions as concerns the skill levels of the different fields they have identified. To convince the participants that it is possible to make such a classification it may be useful to have a good example at hand. The examples should illustrate that an apparently ‘easy task’ may actually require complex and advanced skills, whereas a ‘difficult task’ may even be carried out by a beginner.

The final results are to be evaluated by the participants. Are the classifications made basically correct, or are there still fundamental doubts? In order to initiate further discussions the facilitators can also make alternative suggestions. If the distribution of the activity fields to the different skill levels is uneven, the facilitators should ask the participants how tasks could be changed so that they could, for instance, be performed by a beginner. The facilitators document the classification of activity fields to different skill levels.

Ending the workshop

To conclude the workshop, the facilitators ask the participants to give feed-back regarding the process and content of the ‘expert workers workshop’. They may address, for example, any fundamental aspects relevant for the occupational field which have been overlooked. They should also try to get an evaluation of the results of the workshop from the participants. As methodological variation to group discussions, feed-back can also be given by brainstorming or by collecting keywords. This largely depends upon the style of moderation applied.

The facilitators should likewise summarise the results from their perspective and give an idea about their personal evaluation. The most important thing here is the drafting of a detailed description of the identified typical activity fields based on the results of the workshop.

After the workshop the outcomes should be compiled; the description of a typical activity field should have a length of approximately one page and include the exemplified categories of information and the respective skill level. Typically, an occupational specialisation can and should be characterised by eight to sixteen typical activity fields.

2. Suggested framework of criteria for selecting of learning stations suitable for vocational integration of socially disadvantaged youth

Analysis and selection of the learning stations suitable for vocational integration is based on the following basic concepts:

- **Activity Field: Group of similar holistic work processes** that cover a constituent part of work typical for the concrete occupation aimed to produce or deliver partial or intermediate work results by applying typical technological and organizational approaches and techniques.
- **Learning station:** Exemplary work process for a chosen activity field.
- **Task** – elementary and integrated part of work process defined by the execution of separate operations of actions.

The criteria for selecting of learning stations suitable for vocational integration of socially disadvantaged youth are derived from the work process factors that are crucial for the skills development and employability of the performers of work process. The factors encompass the features of the contents of learning stations, such as complexity, requirements of responsibility, required level of knowledge and skills. These factors also include features of target group (disadvantaged learners, trainees) that define their possibilities to acquire competences, as well as their motivation and attitudes to work and training, their social integration and preparedness to participate in the networks of cooperation and teams. Referring to these factors there are derived criteria for selecting of learning stations, that are the best suitable for designing of vocational integration and propaedeutic measures by outlining concrete indicators of their suitability. Choices should be made in small teams of a skilled worker and a teacher resp. social pedagogue.

From the each of criteria there are outlined indicators that are used in defining suitability of learning stations (see table below).

1. Features of the work process that are important for the development of skills and employability of performers.
Complexity of work tasks and objectives
Requirements of responsibility
2. Features of target group that define their possibilities to acquire competences:
Low level and lack of general knowledge and basic cognitive skills that largely limit the possibilities of these persons to execute work tasks requiring theoretical knowledge.
Absence of specific vocational (technical) knowledge and skills in the occupational fields.
Weak work ethics together with poor or absent practical work experience.
Low or no understanding of labour market and employment mechanisms
Low motivation for the employment and integration in the labour market.
No or poor motivation to learn and develop vocational and general skills.
Lack of trust on personal capacity to perform and to learn in order to be competitive in the labour market.
Poor or no experience of participation and cooperation in the organised social professional

groups.

How to apply these criteria and indicators in selecting learning stations suitable for vocational integration of socially disadvantaged youth? We suggest the following procedure:

1. Assessment of learning stations referring to the indicators related to complexity of work, responsibility and application of knowledge and skills in the execution of the work tasks. At this stage the learning stations are selected by judging whether the indicators of the following list are present/partly present or absent:

Title of learning station:
Indicators for selecting
Elementary work tasks constitute at least 75 percents of all work tasks of learning station.
Work tasks foresee concrete (although auxiliary) contribution of trainees to the production process.
Execution of works tasks include elementary operative decision making at the workplaces.
Execution of work tasks involves trainees in the acquisition of different knowledge through assistance to skilled workers, observation and communication.
Max. duration of introductory training that is sufficient to start working in the learning station is 4 hours.
After working for 1-2 weeks in the learning station trainee acquires knowledge and skills that enable him/her to work on more complex work tasks
Work organization applied in the learning station permits to apply “sitting by Nelly” training and guidance approaches.

Assessment of learning stations by using this form is executed by work process experts. There can be applied interview or expert group method. Only those learning stations that fulfill all indicators are preselected for the next stage.

2. Assessment of learning stations referring to the indicators related to development of work and professional ethics, communication at work, motivation and employment. At this stage the learning stations are selected by judging whether the indicators of the following list are present/partly present or absent:

Title of learning station:
Indicators for selecting
Executing of learning station tasks and operations requires applying general work ethics norms. It may also require applying some elementary norms of professional ethics (e.g. in dealing with customers).
The situations that require applying elementary work or professional ethics are not ambiguous and challenging.
Trainee is being introduced with the procedures and requirements of employment and labour contract.
Working in the learning station involves trainee in the communication with the skilled

employees with the different levels of qualifications and occupied positions.
Executing of learning station tasks by the trainee can be supported and guided by skilled employee(-s).
Learning station tasks include those, which require from the trainees to apply independent decision making on the workplace level.
Learning station integrates both individually and collectively executed tasks.
More complex tasks in the learning station are (can be) executed collectively.

Those learning stations that after selection at this stage have no or only very few absent indicators are suitable for vocational integration of socially disadvantaged youth. If at this stage of assessment some indicators of assessed learning station are absent the experts have to discuss these stations and to decide to what extent the missing indicators of learning station are important for vocational integration of socially disadvantaged youth and whether such learning stations could be selected for step 3.

3. Learning Station Analysis - an instrument to connect Activity Fields and propaedeutic training

Introduction

This summary of the manual '*Learning Station Analysis – an instrument to connect Activity Fields and propaedeutic training*' is an adapted and shortened version of a collaborative product of the pilot projects 'Move Pro Europe' and 'AERONET' in the aeronautic sector implemented by Airbus. In particular, the form of documentation of the analytical results was changed with respect to the specific aims of the project 'APPRENTSOD'. The methods proposed here should be applied to exemplary work places, where the 'activity fields' (AF), proposed to be suited for the integration of socially disadvantaged youth by the experts within the expert-workers-WS (cp. manual 1), are performed.

The procedure 'LSA' (Learning Station Analysis) was developed to help arrange the training at the learning places in an effective way in accordance with the business needs and operating processes. Essentially, it helps users to figure out the work places that are important both in terms of the significance of their operating processes *and* for the learning opportunities they provide. This approach emphasizes the value of training taking place at work stations where really relevant operations are being carried out: the relevance of training to prepare trainees for the requirements of modern skilled work is multiplied if this training takes place where key operational processes are being carried out.

In general an outcome of a LSA should not only focus upon the *working process of the potential propaedeutic training* in general, it should also encourage the *development process of the trainees*.

1 Procedure - milestones

The name 'Learning Station Analysis' itself clarifies the aim of the analysis. 'Learning stations' are places where learning to perform work central to the occupation takes place. LSA analyses workplaces, which cover activity fields (AF). These AFs (cp. manual 1) describe skilled work tasks in terms of characteristic operations and work contexts that are needed in order to make sense of learning and development in an occupation or in a propaedeutic measure preparing for an apprenticeship. They are typical for the profession and together comprise a complete specification of the learning required in order to become fully skilled. With this definition vocational activity fields can be specified as follows:

No individual activities or performances are analyzed, for example drilling or swaging according to reference documentation. Instead tasks, in the sense of complete actions, following a holistic process structure, are analyzed. The aim is a general process structure of activity fields; containing specifications of concrete tasks, including their planning and accomplishment as well as the inspection and assessment of work outcomes. The LSA construct uses the following criteria:

- it has to reflect the super-ordinate coherence of the vocational working process and refer to a self-contained career profile;

- it always describes a work context and a complete work action, which highlights the context for planning, implementing and evaluating;
- the formulation of the documentation also emphasizes the content and shape of the skilled work;
- it reflects the sense, function and meaning in the context of the super-ordinate operational business processes;
- special regard is given to the development potential that is provided by skilled work.

The analysis of the work places for trainees assigned to activity fields is divided into the following three phases:

- preparation of the investigation,
- accomplishment of the investigation,
- evaluation and documentation of the investigation (for use of the results in constructing a schedule for progression through the learning stations).

2 Analysis of Learning Stations – the approach

2.1 Preparation of the analysis of a learning station

Although each work analysis corresponds to an identified activity field (AF-tables), the following practical advice is recommended. It is necessary to distinguish an activity field from sub-tasks. The project is to plan an internship of socially disadvantaged youth at a location in accordance with a complete development and working process. This requires numerous individual analyses, which should be matched in the technical and production areas, in order that suitable development will be realised.

Select workstations

After an activity field, considered to be suited for propaedeutic measures, it is necessary to select operational work places as (possible) learning stations in the enterprise and/or a department, at which qualified specialists master requirements, which are representative for the activity field. Operational representatives of the investigation team are responsible for the selection of the workstations, since they have detailed insight into the business and working processes and can assure the organizational conditions of the investigation.

Usually activity fields are not found in isolation from each other in practice. At many work places, and thereby also at learning stations or work fields, several closely linked activity fields are mastered together. *For the analysis it is advisable to select work places with the 'core specification' of an activity field. Although, in principle, only an individual activity field is tested with the analysis, of course also the interfaces with other activity fields have to be observed.* A simultaneous investigation of several fields can cloud the view of the substantive processes involved in different fields. When several AFs are involved in a work process due to the organization of work, it might be necessary to perform several learning station analyses from different angles, for example, in the case of function checks, disassembling and malfunction analysis.

An influential factor not to be neglected in the selection of work places in departments and operations is the participation of specialists in an analysis of their work. Here it is important to make particularly clear that the analysis does not concern the preparation of rationalization measures or personnel restructuring.

Investigation team

The selection of the participants for the investigation also belongs to the preparation phase. For reasons of an efficient, purposeful execution of a LSA it is recommended to choose a group of two persons, containing an expert skilled worker and a researcher. The following four functions are to be performed in preparation for the group investigation:

- Discussion schedule (interview);
- Preparation of a record (references);
- Preparation of photos and sketches;
- Taking along / organization of working material (e.g. designs).

2.2 Manual for the Analysis

Both for the researchers as well as for those groups of people who are specially selected for an analysis, it is important to look to the manual as to how the analysis leads through the investigation before starting by focusing on the following questions:

- In which *business and working processes* is the activity field integrated?
- At which *workplace* is the task of the activity field executed?
- Which *items* are treated at the concrete task?
- Which *tools, methods and organization forms* are used?
- Which skilled work *requirements* have to be fulfilled thereby?
- Which *interfaces* to other activity fields exist?
- Which experiences exist as regards the *training* on this workplace?

After completion of these basic questions the analysis categories are developed, which can then be opened up in more detail by a leading question catalogue.

Table 1: guiding questions for the Learning Station Analysis

Category of Analysis	Constituent questions
<i>Business and working process</i>	<ul style="list-style-type: none">- The activity field belongs to which business processes?- Which products are produced?- Which services are furnished?- Where do preliminary products come from?- How are orders accepted?- Where are the products used in the further process?- How are processed orders handed over?- Who is the contracting authority/customer for the service?
<i>Workplace</i>	<ul style="list-style-type: none">- Where is the analyzed workplace located?- What conditions of light are present?- What climatic conditions affect the specialists (e.g. warmth, coldness, radiation, ventilation, gases, vapours, fog, types of dust)?- In what circumstances do the specialists master their tasks?
<i>Subjects and methods of the skilled work</i>	<ul style="list-style-type: none">- What is worked on in the activity field (e.g. technical products and processes, services, documentations, control programs)?- What is the role of the object in the working process (e.g. system guide or

	<p>system repair)?</p> <ul style="list-style-type: none"> - What processes are used when working on the task (e.g. error tracing, quality assurance procedure, manufacture, assembly)?
<i>Tools/media of the skilled work</i>	<ul style="list-style-type: none"> - Which tools and media are used to perform this task (e.g. circuit analyzer, torque wrench, PC with user software)? - How is the tool/medium handled?
<i>Organization of the skilled work</i>	<ul style="list-style-type: none"> - Organization of the skilled work (e.g. individual work or group work, division of labour)? - Which hierarchies affect the skilled work? - Which co-operation and borders to other occupational groups and departments exist? - Which aspects of colleagues' cooperation have a unifying effect?
<i>Requirements of the skilled work</i>	<ul style="list-style-type: none"> - Which operational requirements have to be fulfilled during the accomplishment of the task? - Which demands are posed by the customer? - Which social requirements play a role? - Which standards, laws and quality standards are considered? - Which rules and 'standards' does the community of practice require?
<i>Interfaces</i>	<ul style="list-style-type: none"> - Which relations exist towards other activity fields? - Which comparisons can be drawn to other analyses of this activity field that were already accomplished? - Which things in common/differences exist to other workplaces in the operation where the same tasks from the same activity field are mastered? - Which relationships are there to occupational theory (vocational school) and/or for 'vocational basics' and/or to 'core competencies'?
<i>Experiences with the training</i>	<ul style="list-style-type: none"> - Do training components take place at the analyzed workplace? - If not, why? - In which year of apprenticeship are the trainees at this station? - Is the place suited for youth without attained secondary education and having no previous vocational knowledge and skills? - Why, why not? - How long are they at the station and where were they before/afterwards? - Which preliminary conditions should the trainees meet? - What should they learn in the view of the skilled workers at that place? - Which experiences with trainees/young skilled workers do the skilled workers have? - In what way are the trainees supported? - Do the trainees work 'normally' or do they work under separate instruction (e. g. simulated work processes)? - What is the level of autonomy expected from a trainee at the end of his internship at this station? (support/under instruction/under surveillance/independently)

2.3. Execution of the analysis and documentation

The specialists, who are working on the selected workplaces and whose work should be analysed, should be informed of the topic and aim of the analysis. It has to be made clear to them that they should follow as close as possible their everyday work: the analysis is not concerned with ‘performance’, but with the accomplishment of everyday requirements of the skilled worker. If on the day the analysis is carried out there are no ‘highlights’ in the work observed, but rather just unspectacular ‘standard work’, this is not problematic for the analysis. It just reflects normality. The workplaces are visited and tested following the list. On that the skilled workers are asked, in order to make the” invisible “visible. With the agreement the discussions should be noted, in order to handle the information abundance. The required time for the analysis depends on the complexity of the tasks on the concrete workplace. Experience shows that analysis usually takes between one hour and half of a day

3. Evaluation

By using the LSA tool we pursue two targets. First, we try to compare the organisation of work in the learning stations with the tasks to be completed in entry training according to the AF table. Secondly, we make an effort to document the learning potential of these stations. Through using the manual described above, data will be available from the results of the interviews with skilled workers on their workplaces that means the learning potential of each workplace should be easily identified and presented with the necessary clarity. However, one should initially consider as well what can be expected of the ‘learning potential’ in relation to individual development in accordance with vocational training requirements.

For sure ‘potential’ is not a guarantee of ‘learning’, rather it highlights that a situation or context offers (good) possibilities for substantive learning. In qualification research and professional education ‘learning potential’ not only has connotations of positive influences at a personal level, it also highlights in this context the increase of competences in the special subject or task - in the sense that someone is enabled during the learning process to do something that he or she was not able to do before. That is, someone who is not able to do something that he will need to do later in her or his career is not behaving wrongly, he or she is *not yet able* to perform the required tasks. That means that the individual should be expected to reach the required level of performance, in relation to actions and behaviours, not through threats or exhortation, but by learning to do something in the correct manner. For this purpose the individual is in need of appropriate learning opportunities and has to take advantage of those opportunities in order to build up their experience and expertise. Vocational training helps individuals achieve these goals, but in order to realise this supporting role, those planning vocational training have to know where all the relevant learning possibilities are located inside the working process. That is what we mean by ‘learning potential’.

In order to organize an effective progression (or flow) through the different learning stations, the evaluation of the LSA for this purpose must be led by two relevant questions:

- *What* spectrum of skills does one learn at the particular learning station and *what* content of that spectrum is necessary for *which* upcoming stations?
- *What abilities* does one have to possess already in order to increase the chances of effective cooperation here in order to achieve a substantive learning gain?

These two questions have to be answered for each case in a series of learning station analyses. The initial entry level condition of being able to cooperate at a learning station has to be known as well as the expected final level of the knowledge and skills that one should achieve after performing at a particular learning station. This exit level of skills and knowledge itself can then be the entry level, and a necessary condition, for working at the next learning station. As a result at each learning station one needs data on the initial conditions for learning as well as the learning outcomes that can contribute to the learning conditions for successful completion of subsequent learning stations.

Usually the answer to these questions will also depend on the time trainees are able to stay at the operational workplaces. Clearly one who rushes through a process very quickly will learn little about the process itself. Later on he will only be able to tell about the things that he has heard and seen rather than an understanding based upon substantive experience, a rapid progression through work processes is likely to lead to only a superficial knowledge of ways of working that exist in the company. On the contrary, it is important for the control of the overall learning process to have learned in the single steps what is necessary for the upcoming missions in a technical sense and to gain a developing understanding of the work process as a whole.

The flow through learning stations is guided by a pedagogic rationale, since, for example, 'pinning' as ability is needed not just in simple operations but also in very complex work situations. Thus one will rarely find a learning station inside the company where 'pinning' can be learned at a glance. We should thus regard be aware that the core competences may require hierarchical structuring because of rising levels of difficulty and increasing amounts of time to learn. Therefore it makes sense if those less complex component elements of a major task are learned at an earlier stage. This means that it will make sense to order progression through the learning stations so that, for example, pinning is mastered before an apprentice arrives at a learning station involving pinning as part of more complex tasks.

II: Examples of the descriptors of work processes and learning stations in the selected fields (floristry, welding, aircraft mechanics, printing)

Introduction

This chapter provides the examples of descriptors of work processes and learning stations selected for the design of the curricula for propaedeutic vocational education measures. These examples were elaborated in the process of testing of the proposed methodical approach. Project partners selected work processes from the different fields (mechanical engineering, welding, floristry, printing) and analysed these work processes by applying above described methodical guidelines. Research of selected work processes was executed by applying interview or focus group method and involving in this research the experts of work processes – employers, company trainers or skilled workers, vocational teachers and trainers.

Provided cases consist of two main parts:

- 1) Introductory description of the occupation, that includes description of the specific features of work process and competence requirements.
- 2) Detailed and structured description of the work stations, selected for the designing of curricula of propaedeutic vocational training measures.

The descriptors of work process and work stations in floristry were prepared by the partners from Lithuania, welding – by the partners from Spain, aircraft mechanics – by the partners from Germany and printing – by the partner from Italy.

These materials are recommended to use as example for elaboration of the similar descriptors in the other occupations.

Floristry

Suitability of the floristry for the propaedeutic apprenticeship

Floristry presents by itself very creative occupation, opening wide space for the creative and free mind and imagination. It implies work with the nature and enhances the abilities to recognise and capture the aesthetic qualities of nature and its elements. One of the core features of this work is improvisation and absence of the repetitive products – every produced bouquet or other decorative item is original. It ensures high level creative freedom.

However, work with the objects from the nature also requires highly ethical relationships with the nature and environment. A good florist must feel the nature and its aesthetic values, see the beauty in the nature and strive to preserve and transfer this beauty in the design of the bouquets and floristic compositions.

Design and production of the bouquets and floristic decorations is also very independent and individual work.

This work also requires well developed communication skills in dealing with customers, as well as selling techniques.

Very important factor in the acquisition of skills and competences of floristry is the authority of the competent master.

Floristry contains different types of occupations (florist-artist, florist – salesman, etc.). The most common pattern of this occupation consists of the following work processes:

1. Acceptance and preparation of the order: work with the customer seeking to define his/her needs and to formulate the order.
2. Supply and preparation of materials, including the time planning of the orders of materials, ordering of materials, acceptance of received materials and assessment of quality of materials, storage of materials and their preparation for the production of bouquets and decorations.
3. Execution of the order: design and production of the frames and frameworks, composition of bouquets and decorations, evaluation of the quality.
4. Acceptance of the produced bouquets and decorations by the customer, including provision of the recommendations about the maintenance and supervision of the bouquets, invoicing etc.
5. Production of the bouquets for the selling “from the counter” (not according to individual orders).
6. Preparation of the interior of the floristry workshop or studio: positioning of flowers, bouquets, floristic compositions, demonstration materials.

Workstation in the floristry: preparation of the order

description	workstation	Preparation of the order for the bouquet or florist decoration
	profession	florist
allocation	to AF	Design and production of bouquets and florist decorations
process	type of product/service	Bouquets, florist decorations, decoration of rooms, facilities etc.
	Type of production / delivery of services: single/small series/ big series	Single products and orders.
	order- / material acceptance	Different types depending on the order: the customer usually place and discuss the order at workshop or studio. Florist can prepare initial offer concept of ordered item or decoration. The materials are ordered in the different ways: part of them are ordered in the regular way independently from the orders (flowers for everyday sale and bouquets, auxiliary materials), other materials are ordered according to order specifications agreed with the customer (flowers for ordered bouquets or decorations).
	direct user of product/service	Specifications of the approved orders are used by the florists in the execution of the order - production of bouquets or decorations.
	„end“ user of product/service	
	production steps already performed	Preparation of the order and adjustment of the order with customer usually is the first work process.
	production steps	Preparation of the order starts from the meeting of customer in the workshop or studio of floristry. Here it is very important to consider the impact of the interior of the workshop or study to the impressions of customer and his/her image of the workshop. Attractive, well ordered interior of workshop (presence of different flowers, bouquets) can attract the customer and create favourable attitude. Florist can shortly present the workshop to the customer indicating the range of produced bouquets and decorations, if there is a need and the customer is interested. Afterwards the customer presents his/her needs. By engaging in the dialogue with the customer the florist obtains the information on the type of product or service

		demanded by the customer and the requirements of customer on the design and execution of bouquets or decorations. Florist actively helps to customer in making his/her needs explicit by providing information about the types of bouquets and decorations, prices of flowers and other materials, principles of the combination of colours, longevity of the “service” life of bouquets and everyday “supervision”. Product samples and catalogues are used in this process. After the discussion of the type, qualities and price of the bouquet or decoration the final order is prepared and transferred for the execution. Usually it is done in written form providing detailed technical specifications of the ordered product. There can be used different templates (tables, on-line forms) for the formalisation of the order.
	specifics of work process related to the duration of execution, work process organisation, quality assurance etc.	It is individual work based on the face-to face discussion with the customer. Duration of the order preparation can be very different depending on the type and volume of the order.
workplace	hall	Workshop or studio of floristry, can be of different size.
	illumination/ environment	Illumination is important but not crucial factor. The style of interior can be important factor to attract the customers and to persuade them to place the order. There must be available catalogues, samples of products and materials and other demonstration materials. On-line catalogues and IT data bases and design measures are also widely used.
	posture	In the process of the setting of the order the florist can take different postures: standing in discussing with customer and demonstrating samples, sitting in the formulation of the order with PC, etc. The posture has to demonstrate customer orientation and attention to the customer and his/her needs.
	specifics	Mostly individual work. Working in team is difficult and not recommended, because it can distract customer and make the communication with customer more complicated.
objects & methods	objects / systems	Design of the bouquets and floristic decorations, flowers, decoration of the rooms and facilities, artistic concepts of the bouquets and floristic compositions.
	methods / activities	Communication techniques, interviewing customers in preparing the order, techniques of the information search, work with the on-line catalogues and

		databases.
	specifics of the execution	-
tools/ standard material (to tick):		
Flowers	Sample bouquets	Catalogues and albums of bouquets and flowers (hard and software based)
		Internet databases
building apparatus: can be separate space for communication with customer		
organisation	employees on place per shift	1
	employees at range	1
	hierarchy	
	cycle	1
	shifts	1
	similar building places	
	Cooperation	Individual work, in case of work specialisation (when the order setting is separated from the execution), the main cooperation partners are florists producing the bouquets and decorations (executing orders).
	specifics	
requirements	General	Comprehensiveness of the order specifications, adherence of the order specifications to the seasonal conditions, provision of customer guidance and information.
	special	Creativity and free/open thinking, ability to persuade the customer to accept competent suggestions, selling techniques.
interfaces	to AF?	Defines the specifications for the execution of the order and quality assurance.
	to other places?	Depending on the type of work organisation : in case of separation between order acceptance and execution the order is transferred to the executing florists.
	to workshop/ professional theory?	Theoretical knowledge of the botany (esp. flowers), knowledge of the arts and art history, styles, etiquette, traditions, etc.
	miscellaneous	
vocational training	vocational year / duration	Up to 6 months

	premises / previous stations	1. Basic knowledge of botany, flowers, colours, communication skills, skills for work with PC.		
	What should they learn?	To present the workshop/study and its products / to define customer needs / to consult the customer / to formulate the order/ to apply the factual knowledge of botany, arts and other fields, to apply selling techniques and communication skills.		
	specifics of training (individualisation, duration, timing)	Mostly individual training/learning based on the multiple observations of the order preparation process executed by the competent florist and then simulation of this process with competent florist (playing the role of customer) in the workshop or studio. The learning in teams is also possible and provides certain advantages: the apprentices can share their questions and impressions in discussing the observation of the work process, they can also analyse the performance of the simulated order processing of each other providing their suggestions and recommendations or can “play” the role of customers in these simulations. The duration of training can be very different, depending on the types of the orders performed by the workshop and the progress of apprentices.		
	experience with trainees & young skilled workers	Existing experience shows, that this work process is suitable for the apprenticeship with the propaedeutic purposes, because it provides comprehensive view of the occupation of florist, discloses the space for the creativity in this work, attractive and interesting compromises between the creative freedom and consideration of the customers’ needs. It is also helpful by permitting the apprentice to feel the power of the expertise in dealing with customers.		
	assistance / working tasks	Assistance of competent florist is needed in the simulation of the order processing and in the first cases of participation in the real order processing. After the observation of the competent execution of order setting the florist has to explain this process to the apprentice and to answer his/her questions.		
	Is the existing potential used?	Yes		
	improvement possibilities	-		
	number of the trainees per building place	1-2		
highest level of autonomy reachable	support	under instruction	under surveillance	independently
			x	

Welding

Name: Welding with coated electrode or TIG

Code: FMEC0110

Professional field: Mechanical Engineering

Professional area: Metalworking

Level of professional qualification: 2 – Equivalent Middle Grade

AREAS OF ACTIVITY:

1. Preparation of the material.
2. Metal forming.
3. Installing weld backing.
4. Welding.
5. Verification.
6. Finishing.
7. Packaging.
8. Cleaning.
9. Basic equipment maintenance.
10. Occupational Health and Safety.

1. PREPARATION OF MATERIALS

Preparation of materials for ferric metalworking:

- Types of beams. Definition and application.
- Types of sheet metal. Definition and application.
- Commercial forms.
- Plastic materials and accessories.
- Types of hardware. Definition, characteristics and application.
- Joining techniques. Definition, characteristics and application.
- Forms of transmitting information in a clear and structured manner.
- Order and method in the performance of tasks.

Preparation of metalworking machinery and equipment:

- Preparation and operational maintenance of machinery.
- Assembly and disassembly of tools, equipment and parts.
- Metal forming equipment: operation.
- Operating and Maintenance manuals. Preventive and operational.
- Safety devices and systems.
- Safety regulations.

- Most common accidents when using the machinery.
- Personal Protective Equipment (PPE).
- Active safety systems of the machinery.
- Standards for order and cleanliness.

Preparation of welding equipment:

- Description of the components of an arc welding workstation.
- Regulation of welding parameters and intensity.
- Preparation of the machinery:
 - o Electrical equipment is properly connected, verifying the polarity in the case of a continuous current and that the ground connection is firmly fixed.
 - o The electrode holder and ground clamp show no anomalies.
 - o The welding parameters are appropriate to the type of materials to be welded and the electrode to be used.
 - o The equipment and facilities are properly supervised, verifying correct operating parameters.
- Preparation of the work area, with the materials necessary for the specified welding job:
 - o Electrodes, rods, gas cylinder, tungsten sharpener and other consumables.
 - o The consumables are selected according to their function and the materials to be welded, always identified by their common names.
 - o The edges to be welded are prepared according to the characteristics and dimensions of the materials, the consumables to be used and the welding procedure.
 - o The consumables are handled and stored correctly at the workstation.
- Types and choice of electrodes.
- Safety devices and systems of the welding equipment.
- Safety regulations and norms.
- Standards for order and cleanliness.

Cutting procedures and preparation of edges:

- Measure the pieces. Level the pieces. Cut the sheet metal and beams.
- Prepare the material, equipment, tools, instruments and safety equipment for manual cutting (plasma and oxy-fuel) and semi-automatic (shears and saw) of sheet metal and beams, complying with applicable technical specifications, quality standards and OHS plans and standards.
- Operate the thermal cutting equipment (manual and semi-automatic) to obtain sheet metal and beams in the specified forms, applying the OHS plan and standards.
- Operate the mechanical cutting equipment to obtain sheet metal and beams in the specified forms, applying the OHS plan and standards:
 - o Select the cutting equipment and tools necessary according to the characteristics of the materials and the standard of quality required:
 - Get the equipment ready, selecting the appropriate parameters.

- Verify that all tools and equipment is in optimum condition for use.
 - Execute the cut with the required standard of quality.
 - Comply with all safety standards during cutting, using the appropriate Personal and Collective Protection Equipment established in the OHS plan and standards.
 - Identify, or where applicable, relate possible defects and their possible causes.
 - Clean the surface of the cut and verify that the dimensions of the pieces are within established “tolerances”.
 - Clear the work area, collecting all materials and equipment used.
- Operate the automatic cutting equipment using numerical cutting controls to obtain sheet metal and beams meeting the corresponding technical specifications, applying the OHS plan and standards.
 - Standards for order, cleanliness and safety.

Workstation : welders’ assistant

Description	workstation	
Location	profession	Assistant welder of metal structures
Allocation	to AF	Metalworking and finishing
Process	type of product/service	Metal pieces
	Type of production / delivery of services: single/small series/ big series	Small series
	order- / material acceptance	The order reaches the shop manager from an external company.
	direct user of product/service	A shipyard
	„end“ user of product/service	A shipping line
	production steps already performed	1. Design by Engineer
	production steps	Design by Engineer Assembly by Master boilermaker + assistant Welding by the Welder Verification of the piece by the supervisor.
	specifics of work process related to the duration of execution, work process	

	organisation, quality assurance etc.			
Workplace	hall	Warehouse		
	illumination/ environment	Electric and natural light		
	posture	Any posture except sitting or with hands in pockets		
	specifics	A crane is required		
Objects and methods	objects / systems	Connection to electrical power system		
	methods / activities	TIG/ Coated electrode / MIG-MAG		
	specifics of the execution			
tools/ standard material (to tick):				
Grinder	Wrenches	Square	Level	File
Punch	Hammer	Brush	Chisel	Pick
Rasp				
Sheet metal	Beams	Pipes		
building apparatus:				
Shears	Band saw	Press Break	Roller	Universal metal shears
Oxy-fuel cutter	Plasmas	Beam bending machines		
organisation	N° of employees on location per shift	20		
	Employees available	20		
	Chain of command	Assistant - Official- Foreman/Supervisor- Engineer-Director		
	Cycle			
	Shifts	1 shift		
	Similar construction locations	5 or 6		
	Cooperation	All work is cooperative		
	Specific aspects	Work is performed in teams		
requirements	General	Meet specifications for schedules, quality according to applicable standards		
	Special	The quality standards are specific to each sector		
interfaces	For the activity	With the machining shop: there are many pieces that must be machined and pass through this area before welding		
	Other locations?			
	To a workshop / professional?	There is relation with: - the warehouse to collect materials - subcontracted auditing companies		

		<ul style="list-style-type: none"> - subcontracted engineering companies - subcontracted painting companies 		
	Various			
vocation al training	Year / duration	4 week apprenticeship		
	Installations / previous facilities	Warehouse		
	What should the apprentice learn?	<p>In 4 weeks, the apprentice should learn:</p> <ul style="list-style-type: none"> - To prepare the necessary materials - Assist in assembling pieces (levelling, pointing) - Make basic outlines - OHS standards (the company gives a basic safety course). 		
	Specific aspects of the training (individual work, duration, schedules)	<p>An apprentice is always with one or more supervisors, who take turns.</p> <p>The apprentice will be in the workshop 8 hours/day.</p>		
	Experience with students and young workers with experience	Where there are others, yes		
	Tasks of assistant / work	<p>Before welding:</p> <ul style="list-style-type: none"> - Prepare the materials - Metalworking - Installing weld backing <p>After welding:</p> <ul style="list-style-type: none"> - Verifying dimensions. - Finishing. - Packaging - Cleaning - Basic equipment maintenance 		
	Performing up to potential?	Depends		
	Possibility of improvement	Yes		
	Number of students per location	6 students/year (not together, in 3 different periods)		
highest level of autonomy reachable	Support	Under instruction	Under supervision	Independently
	X			

Aircraft mechanics (Airbus Bremen)

Differing from other qualifications in the report is aircraft mechanics quite challenging, only 2 (out of 11) activity fields of skilled workers are suited for propedeutic measures for the integration of socially disadvantaged youth.

Activity Field 1: production of metallic components for aircraft or ground support equipment.

Aircraft mechanics produce components for the structure of the aircraft (e.g.: stringers, cuts, skin plates) including the equipment (e.g.: Hydraulic lines) according to the valid construction specifications, standards and concretizing rules. In addition, they produce components for ground support equipment. The bases for the production of the varying components are plates, steel strips or semi-finished products. After careful planning, processing takes place predominantly via the application of cutting or (re-)forming procedures (e.g., sawing, filing, cutting of interior or external thread drills (e.g. with hydraulic cables)). Manual and mechanical manufacturing procedures are used. The manual procedures take place using not only the technical designs but partially with the help of devices such as contour templates. In particular during the process of elaboration of large plates before the execution of reforming manufacture processes a heat treatment is necessary to increase the level of reformation / the strain. Heat treatments additionally are used for changing material properties. Since in the aircraft construction it is of a central importance that the weight of the used components is as low as possible the wall thicknesses are optimized for a lot of components (e.g. by chemical abrasion) of material or surface milling. The marking of these components as well as the quality inspection and the documentation of orders are integrative elements of this activity field. The quality inspection already occurs during the production process (e.g. for cracks during forming). Damaged parts are repaired or replaced – depending upon the degrees of damage. Recurring faults, that are not yet documented, are additionally reported to the responsible design department. The task ends with the further transport or the preparation of the further transport of the finished components.

Activity field 2: joining and dissolving of structure components and aircraft airframes

Complex structure components and structure assemblies (e.g. Landing flap commands, shell elements or bearing area structures) and whole aircraft-airframes are produced out of single components. For this purpose the single parts or components have to be selected out of most varying materials on the basis of technical information. The operational funds needed for joining must be selected likewise. During the process of adaptation and joining the given gap and profile sizes have to be kept. For joining major components, the major components must be transported, lifted and positioned as well. A main topic of the joining processes in the aircraft construction is the manual and mechanical setting of rivets. Depending upon material, combination of materials (e.g. mixed construction of metal and composite) and stress different rivets are used (e.g. hi-lok, lock bolt or hi-shear). For the preparation of a rivet joint holes and lowerings are produced and sealants are applied on the joining areas. Apart from riveting with rivet hammer or rivet press there are also automated production systems used for riveting at standardized components manufacturing plants. As further joining processes there are used screwed connections, safety elements according to aviation standards and splicing tapes as well as most varying welding methods (e.g. laser-welding and friction agitating welding) in order to connect assemblies. Also the liaison methods and processing at these procedures depend on material, material combination and stress of the component. Some further

processing steps must be accomplished at the finished assemblies (e.g.: Stems of tons, position and measure from grounds). The connections that are established in the context of this task of work are subject to a permanent inspection. If defective connections are determined, then an immediate exchange occurs. In addition the actual connection is first solved and then replaced afterwards by a new connection. In the maintenance and repair the solving is accomplished with the disassembly of structure components. Due to adjustment and optimization work this part of the task of work is important in addition, for the first assembly. Since the solving of structure components in most of the cases doesn't occur without deconstruction it requires much experience of the skilled worker that no unnecessary damage occurs at the components. The documentation of the orders, the gap and profile sizes and possible construction deviations ranks likewise among this activity field. After conclusion of the joining processes the surface of the components must be protected. This work procedure is accomplished depending upon Labour Organization independently as another activity field or directly after conclusion of the joining work.

Workstation: production of small components

Designation	Learning station	Small components
Location	Occupation	Bremen / Aircraft Mechanic
Classification	to Activity Field (AF)	AF 1: - production of metallic components for aircraft or ground support equipment. AF 2: - joining and dissolving of structure components and aircraft airframes
Process environment	aircraft type(s)	particularly A 330 / A 340 / A 380 / but also other aircraft types
	Sections / Divisions / Specialist groups	component manufacturing
	(Internal) Supplier	various (changing) suppliers for smaller aircraft components
	Acceptance of material and order	The logistics center arranges dollies with the corresponding components according to the order.
	Immediate customer	track assembly, equipment wing and flap
	„End“customer	Toulouse
	Prior process steps	See supplier
	Interfaces in the process	Surface protection, quality assurance
	Special features	
Process steps Differentiated description	In addition to the assembly of the flap carriage in this department a multitude of works is carried out, which can be characterized less by special components, but rather by the methods used there. There are various bushings and bearings fitted in different small components as well as repairs to small components and wear parts replaced (bushings / bearings). Furthermore ribs for the flap structure are produced completely. The fitting of bushings and bearings is done by chipless forming and metal-	

	<p>cutting. On the one hand bushings/bearings are fitted in pressing connections by being frozen (shrunk) previously or getting fit by spinning operations (chipless forming). On the other hand, the fitting dimensions (interference fit) in the honing machine (metal-cutting) is sized on the installation dimension. Another method to connect bearings / bushings to the structural components is caulking (stretching of the material at the bearing ends) with the appropriate Müller press.</p> <p>The repairing work in the department substantially relates to the same duties. Faulty and worn bearings/bushings are removed, inspected and replaced/repared if necessary.</p> <p>For rib construction, following processes are applied: nut plates are drilled and set, Hi-Lok connections are created, various angles and holders are drilled and riveted to the rib.</p> <p>The assembly workstation of the flap carriage is the only construction place in the department, where the same component is produced always. It includes the installation of bearings bolted with torque and secured with cotter pin.</p>		
Workplace	Hall	20a	
	Lighting, Environment	Bright. No noisy area. When dealing with primer and sealant, protection measures must be taken into account.	
	Posture	Standing and sedentary activity	
	Special features		
Organisation	Group work?	Partly Autonomous Groups (TAG)	
	Colleagues in place per shift	20	
	Colleagues in sector	46	
	Command structure	Section coordinator, group spokesman, employee	
	Cycle / Stations	Besides the station, where flap carriages are produced, single workstations at workbenches and tool machines are dominant in the department.	
	Shifts	1	
	Congeneric assembling places	A subset landing flap (Hall 5) has similarities. However, there parts are not frosted, rolled and caulked.	
	Special features	There is a variety of different und changing building elements on bench- and machine work.	
Building methods	Components, assemblies, materials, systems	Connectors, brackets, nuts, div. components for assembling	
	Methods / operations	Production/assembling of small components to construction documents. Chipless forming and metal-cutting. Operate box column drills, honing machines, presses and frost systems.	
	Special features	Due to the multitude of different components, there is a corresponding number FeMis.	
Tick/ Complete below:			
Pneumatic Tools:		Tools/Expendable	Measuring

		materials:		equipment:	
hand drills (90°, 45°, 30°, 180°, angle-angle)	X	Hand belt sander	X	Steel Gauge	X
Hi-Lok take-off unit	X	Cement mixing machine	X	Feeler gauge	X
Revolver drill	X	assembling tool	X	dial indicator	X
Take-off unit for welding studs	X	Korbsenker	X	Collar gauge	X
Hi-Lite take-off unit	X	Folder	X	Hi-Lok gauge	X
Pneumatic screwdrivers	X	Brush	X	Templates	X
Rivet head mill	X	clamps	X	Calliper gauge	X
		Recoilless Hammer	X		
		Graters	X		
Supplement:		Detergents	X		
Torque wrench		Quickloks			
Hand lever press		Jointers	X		
Hydraulic press		Countersink	X		
Box column drill		Special drills	X		
Boom drill		Aluminium bolts	X		
		Adhesive rolls	X		
		Wooden spatula	X		
Jig /FeMis/BeMis:		FeMis		Frost system	
Special Requirements		Producing and assembling of press fits: Spinning operations, caulking and freezing as well as working on the honing machine requires special knowledge/experiences.			
Interfaces	To AFs?	11 (quality control)			
	At other learning places?	Track construction			
	To Training workshop / professional theory?	Exercises, including assembly activities and working on tool machines (box column drill, hand lever press). Courses, teaching read of complex drawings and orders as well as dealing with manuals.			
	Others				
Educatio	Training year /	2nd to 3rd training year / 3 weeks			

n	duration			
	Requirements / previous stations	Basic knowledge of metalworking, drawing read, motivation.		
	What should they learn here? / learning targets	Dealing with the specific tools, techniques and materials.		
	Special features			
	Experiences with trainees and / or young crafters	Very good experience in recent years. The trainees are motivated and work very independently, which causes very good learning success.		
	Support / Working tasks	<p>In advance, official safety training is performed.</p> <p>The sequences are shown to the trainees and depending on the assessment of their abilities work will be transferred to them. Due to the various orders the trainee's task must be continuously attuned with the ABB.</p> <p>The trainees may be entrusted with all relevant tasks at the construction place, except for the work on the honing machine and the Müller press. The repair works are not covered by trainees. According to regulation, these operations should only be carried out by staff with specific training and appropriate certification.</p>		
	Experience with BFE / FES	The assignment of an ABB for the care of the trainees is deemed very positive.		
	Number of ABB in the area	1		
	Possible number of trainees per construction site	Max. 2 trainees, ideally 1 trainee		
	Others			
	Is the learning potential available used?	Yes, except for honing machine, Müller press und particularly repairs.		
	Improvement opportunities	None		
highest level of autonomy reachable	support	under instruction	under surveillance	independently
			X	

Printing

Field activity: Bindery – storehouse

Job: cutting

Collocation of the working activity in the working flow: working activity complementary to the printing area and responsible of the right supplying of the paper storehouse (types of paper and format) this professional job is also responsible of the bindery activities of the printed product.

TYPE OF SEMIFINISHED PRODUCT

Printed sheets in the commissioned format.

SEMINIFINISHED PRODUCT PROVENIENCE

The printed sheet comes from the printing area placed on pallets.

INDICATIONS GIVEN AT THE RECEPTION OF THE SEMIFINISHED PRODUCT

The indications are given from the order responsible (technical office) and are written on the project paper of the order. The project paper contains the technical characteristics of the semifinished, the global working flow and all the useful information about the semifinished. It follows each working activity in every passage.

INDICATIONS GIVEN TO THE WORKER FOR THE PACKAGING (THE FOLLOWING WORKING ACTIVITY)

The project paper describe the order with the technical characteristics of the product and with the operative indications of the different phases. It follows each working activity in every passage.

It is the editorial product binded and finished and given to the storehouse for the packaging activity.

ATTITUDES:

Preparation for working in standing

KNOWLEDGE:

- Knowledge written code of the project paper
- Knowledge of the different types of the editorial products; paper size; paper printeg sheets
- Knowledge of the moving machines: power control, load capacity
- Knowledge of the capacity criteria and the moving procedures
- Knowledge of the cutting machines: power control, load capacity, settings

PROFESSIONAL DEVELOPMENTS: / DESCRIPTION OF THE ACTIVITY FIELDS

1st activity field

Title: Reception of the order with the project paper given by the technical office

Tasks: reading and comprehension

Method: reading and comprehension of the technical information

Ability level: low

Liability level: medium

Prerequisites:

Knowledge of written code of the project paper

Knowledge of the different types of the editorial products; paper size; paper printeg sheets

Learning of prerequisites:

On the field by tile (one week)

Or previously acquired by:

Short vocational or working experiences in the printing and binding fields

2nd activity field

Title: Taking charge of the semifinished

3rd activity field:

Title: Setting of the cutting machine

4th activity field

Title: Conformity check of the measurement

5th activity field

Title: Cutting/ trimming procedures.

6th activity field

Title: Setting of the pallet for the packaging

7th activity field

Title: setting of the sheets for the printing area.

8th activity field.

Title: Procedures of the paper warehouse management.

Workstation

Description	Workstation	
location	profession	
allocation	to AF	
Process	Type of product/service	Graphic Offset Printing and bindery
	Type of production	Production of printing of Little and médium format/size
	Order/material acceptance	
	Direct user of product/service	Warehouseman
	“End” user of product/service	Customer
	Production steps already performed	Creation of the working flow Creation of the graphic proposal to show

		Acceptation of the proposal and creation of the executive work Creation of printing plate and blueprint Emmission of the “Visto si stampi” Printing activity Binding activity
	Production steps	Paper size cutting and bindery of the graphic product
	specifics of work process related to the duration of execution, work process organisation, quality assurance etc.	<ul style="list-style-type: none"> - Entering og the paper size - Cutting machine settings - Cutting machine - Delivering printing to the bindery
workplace	Hall	Industrial hall
	Illumination/environment	Natural and artificial light
	Posture	The work is done in standing position and moving
	Specifics	Sometimes it is necessary to use a “transpallet” for moving the paper sheets
Objects & methods	Objects/ systems	Electrical network correctly dimensioned
	methods/ activities	
	Specifics of the execution	
Tools / standard material (to tick)		
Cutter	Meter	
Flows		
Working shoes		
Building apparatus		
	Cutting Machine	Transpallet
Organisatio n	Emplyees on place per shift	
	Employees at range	
	Hierarchy	Holder – Chief order– Worker
	Cycle	

	Shifts	2 shifts		
	Similar building place	/		
	Cooperation	It is normally an individual work		
	Specifics			
Requirements	General	Precision, manual liability,		
	Special	Paper types		
Interfaces	To AF?	The cutter receives the working sheet with all the indications from the technical office, following the specifics given, he cuts the paper size to send to the printing activity. When the product is printed, he makes its bindery		
	To other places?	/		
	To workshop /professional theory?	Graphic Technology (paper format, paper types, paper storage, etc...)		
	Miscellaneous			
Vocational training	Vocational year / duration	8 weeks of practice		
	Premises /previous stations	Knowledge of the paper size, of the types of papers, precision		
	What should they learn?	<p>In 8 weeks he/she should learn to:</p> <ul style="list-style-type: none"> - Working of the cutting machine - Types of papers - Types of papers size 		
	specifics of training (individualisation, duration, timing)	The learning method will be the tile in every working activity.		
	experience with trainees & young skilled workers	Ten years		
	Assistance / working tasks	The activity of trainee will have specifics training moments, gradual experimentation of the different activities in order to make the practical development of the skills developed in autonomy.		
	Is the existing potential used?			
	Improvement possibilities			
	Number of the trainees per building place			
highest level of autonomy reachable	Support	Under instruction	Under surveillance	Independently
		X		

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